**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
GAINESVILLE DIVISION**

SANTANA BRYSON and JOSHUA BRYSON, as Administrators of the Estate of C.Z.B., and as surviving parents of a deceased minor, C.Z.B., Plaintiffs, v. ROUGH COUNTRY, LLC, Defendant.	Civil Action No. 2:22-CV-17-RWS

**DEFENDANT ROUGH COUNTRY'S *DAUBERT* MOTION TO
<u>EXCLUDE G. BRYANT BUCHNER, P.E. AND HIS OPINIONS</u>**

COMES NOW Defendant Rough Country, LLC, and hereby moves this

Court, pursuant to *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113

S.Ct. 2786, 125 L.Ed.2d 469 (1993), and Federal Rules of Evidence 403, 702 and

703, to exclude any opinions, testimony, or evidence by or from G. Bryant Buchner,

P.E. that is (1) based on his mathematical "crush analysis;" (2) related to his

computerized HVE simulations;[1] (3) criticism of RC's test crash; or (4) from any

other of Plaintiffs' experts that is based on any of the foregoing.

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[1] Buchner's amended/re-run HVE simulations are currently subject to a Motion
to Strike because they were untimely produced to RC. (Doc. 119.)

I.   STATEMENT OF PERTINENT FACTS AND BACKGROUND

A. Plaintiffs' Claims and Allegations

This case arises from a collision ("the Accident") in which a 2016 Ford F-250

truck driven by Hunter Elliott slammed into the rear of Plaintiffs' 2008 Ford Escape

at 51 miles per hour. [Doc. 109 (Order on RC's Motion for Summary Judgment), at

2.] Mr. Elliott's F-250 truck had an RC lift kit installed on it. The crux of Plaintiffs'

case is their allegation that RC's lift kit caused Mr. Elliott's F-250 truck to bypass

certain "frame and crash protections" of their Escape and that, but for the lift kit,

"Mr. Elliott's F-250 would not have intruded so far into their Escape," (*Id.*) Plaintiffs

are therefore asserting a claim for "enhanced injury," arguing that an unlifted 2016

Ford F-250 truck would not have caused such a significant intrusion into Plaintiffs'

Escape, and C.Z.B. would not have been killed. (*See, e.g.*, *id.*, at 14.)

B. Buchner's Various Opinions and Testimony

Buchner issued three reports in this case, and he was deposed twice. *First*, he

issued his initial report on October 12, 2023 (the "Initial Report"), which was

previously filed with the Court as Doc. 119-1, but which also accompanies this

motion as Exhibit 1. *Second*, Buchner was deposed about his Initial Report on

January 23, 2024 (the "Initial Depo."), which was previously filed with the Court as

Doc. 119-4. *Third*, he issued an "Amended Report" on May 8, 2024 (the "Amended

Report"), which was previously filed with the Court as Doc. 119-2, but which also

accompanies this motion as Exhibit 2. *Fourth*, Buchner issued a rebuttal report (the "Rebuttal Report"), which was previously filed with the Court as Doc. 115-6, but which also accompanies this motion as Exhibit 3. Finally, Buchner was deposed as a rebuttal expert on July 11, 2024 (the "Rebuttal Depo."), which was previously filed with the Court as Doc. 119-6.[2]

C. Buchner's "Crush Analysis" Opinion

In his Initial Report, Buchner conducted a "crush analysis," whereby he used mathematical formulas to determine that "if the F250 was not raised, the Ford Escape would have had significantly less crush than occurred in the subject accident," [Ex. 1 (Initial Report), at 10.]. According to Plaintiffs, Buchner's mathematical "crush analysis" is the primary focus of his opinions and testimony. [*See* Doc. 125, at 5 (Buchner "primarily bases [his] opinion on a mathematical calculation he performed").] Buchner's mathematical calculations were set forth in Exhibit 4 hereto.[3] According to Buchner's Exhibit 4:

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[2] Unlike Buchner's reports, which are relatively small in size, RC is not re-tendering transcripts from Buchner's depositions due to their volume.
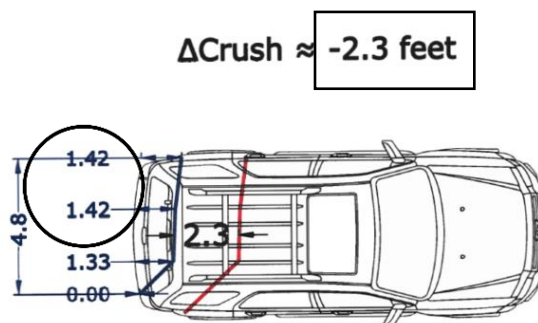
[3] Plaintiffs previously tendered Exhibit 4 to the Court as Doc. 125-4, and they described it as Buchner's "underlying file data showing the hand calculations he performed," (Doc. 125, at 5).

2008 Ford Escape: Accident Crush
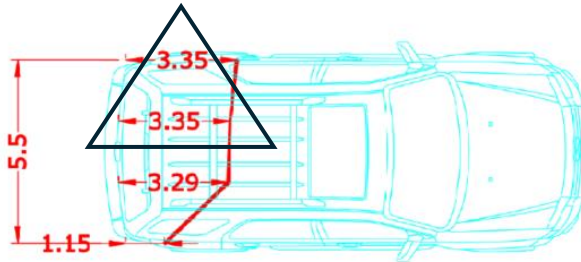
Ex. 4, at 7 (Bryson 003995).

Calculated Stock Vehicle Crush

ΔCrush $\approx$ -2.3 feet

2008 Ford Escape 4x2

Ex. 4, at 2 (Bryson 003990).

- Plaintiffs' Escape's "Actual Crush" (triangle) was 3.35 feet [Ex. 4, at 7 (Bryson 003995)];

- The Escape's "Calculated Crush" (circle) was 1.42 feet [*id.*. at 2 (Bryson 003990)]; and

- Mr. Bryson's stated difference, or "ΔCrush," between the two (rectangle) is 2.3 feet [*id.*, at 2 (Bryson 003990)].

But Buchner's math does not add up, and the basis for Buchner's stated 2.3 feet of ΔCrush is unclear: the difference between the Actual Crush of 3.35 feet (triangle) and the Calculated Crush of 1.42 feet (circle) is 1.93 feet, not 2.3 feet.

Further, Exhibit 4 does not clearly state mathematically how the Calculated Crush of 1.42 feet was determined. The Calculated Crush (1.42 ft.) is listed as a defined value(s) ($C1_B$ and $C2_B$), [Ex. 4, at 4 (Bryson 003992)], but there is no formula provided which specifically calculated either $C1_B$ or $C2_B$. It is therefore unclear how Buchner actually reached his Calculated Crush ($C1_B$ or $C2_B$) in connection with his Crush Analysis/Exhibit 4.

D. Buchner's HVE Simulations

Buchner also perform computerized simulations in connection with his opinions in this case. According to his Initial Report,

> The [Accident] was simulated in HVE (Human Vehicle Environment), a physics-based 3D computer simulation used in accident reconstruction, using SIMON (Simulation Model Non-Linear). SIMON is a 3D vehicle dynamic simulation model that is used to simulate vehicle-to-vehicle collisions.

[Ex. 1 (Initial Report), at 11.] Additionally, the SIMON software used the DyMesh model. [Doc. 119-4 (Initial Depo.), at 12 (42:14-16).]

Buchner, however, has had limited training on HVE, and he is effectively self-taught. [Doc. 119-4 (Initial Depo.), at 4 (13:18-24) (last training "may have been – from what [he] remember[s], almost 20 [now 21] years ago").] Buchner never had any specific training in either SIMON or DyMesh; this includes never going to any classes related to the software. [Doc. 119-4 (Initial Depo.), at 12 (42:18-24).]

Despite his limited training on HVE, SIMON, or DyMesh, Buchner attempted to predict through his HVE simulations what effect, if any, RC's lift kit had on the Collision by "crashing" a digital unlifted/stock 2016 F-250 truck into a digital 2008 Escape.[4] Buchner then opined that:

> [c]alculations and simulations of the accident with the F250 at factory height produced collisions that reduced the Escape's crush and resulted in damage which would not have penetrated to the rear seat such that the rear occupant compartment would not have been compromised.

[Ex. 1 (Initial Report), at 12.]

When he ran his HVE simulations, Buchner did not run a single simulation. Buchner ran multiple, "iterative" simulations (*i.e.*, "runs") until he found what he believed to be an appropriate outcome. [Doc. 119-4 (Initial Depo.), at 5 (15:20-16:8) ("a junior engineer" does "the vast majority"); *id.* (15:23-25) ("We would have basically used an iterative process – an iterative process to get the answer to match the download").] Despite being an experienced federal expert witness, Buchner did not "save" the different iterations of his simulations or otherwise track the differences in them. [Doc. 119-4 (Initial Depo.), at 40 (154:10-11 and 154:20-23).]

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[4] When asked for "any support that [he] can cite to that would validate [his] use of HVE to calculate or determine crush in a hypothetical incident," Buchner could not cite to any except to refer to two books which "talk[] about HVE and the robustness of it," [Doc. 119-4 (Initial Depo.), at 11 (41:8-23).]

As a result, he had to re-run his HVE simulations, which were disclosed to RC through his Amended Report. [Ex. 2 (Amended Report), at 2 ("My intention was to produce the entire simulation, including raw data and all reports but *because data was lost, we ran an amended simulation*") (italics added).] Buchner also changed some of the data used for the amended HVE simulations. [*See id.*, at 3 ("compar[ing]" the two batches of runs).] As a result, the amended HVE simulations did not yield the same results as Buchner's initial HVE simulations. [*See, e.g., id.*, at 4-5 (explaining results which were "on average less than 0.1 feet" or having different delta-Vs for the Escape).]

E. Grimes and His HVE Simulations

In response to Buchner's proffered opinions, RC retained Wesley Grimes, an accident reconstruction expert.[5] Grimes is very experienced with HVE, and he is an instructor for advanced HVE usage. [Doc. 102-3 (Grimes Depo.), at 25:14-24.]

As RC has explained in other filings, Plaintiffs' delay in producing the digital HVE case files severely limited Grimes' ability to properly, fully, and fairly consider Buchner's opinions and analysis. [*See, e.g.,* Ex. 5 (Grimes Nov. Report), at 4 (Grimes

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[5] Grimes issued his initial responsive report on March 27, 2024 (the "Grimes March Report," previously filed at Doc. 119-3), and his supplemental report on November 26, 2024 (the "Grimes Nov. Report," previously filed at Doc. 116-4 and 125-8). Grimes was deposed on May 9, 2024 (the "Grimes Depo.," previously filed at Doc. 102-3). For the Court's convenience, the Grimes Nov. Report accompanies this motion as Exhibit 5.

"attempted to reproduce Buchner's HVE materials using his printouts, but [he was] unable to verify his HVE runs").] As Plaintiffs recently admitted to the Court, the amended HVE data was necessary for "RC's equal access to the parameters and results of [Buchner's] computer simulation and allowed RC's experts to review and validate his underlying data." (Doc. 125, at 3.) Once Plaintiffs provided Grimes with the digital HVE case files related to the Amended HVE Simulations, he was able to properly analyze Buchner's HVE simulations.

The results were disconcerting, to say the least. When Grimes used Buchner's HVE case files, but changed significant variables, such as the height of the simulated F-250 or the offset of the collision, the resulting HVE simulations generated very similar results across the spectrum. [Ex. 5 (Grimes Nov. Report), at 10.] According to Grimes, "*[t]hese results show that the SIMON tool is not accurately modeling the crush on the Ford Escape in this case, at these speeds and impact configurations*." [*Id.* (italics added).][6]

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[6] Whether the Court excludes the Grimes Nov. Report as untimely, as requested by Plaintiffs (Doc. 116), is irrelevant to RC's reliance on the Grimes Nov. Report to support its showing that Buchner's opinions and HVE simulations are unreliable.

Simulation Config.	Elevation of Crush Data (inches)	C1 (inches)	C2 (inches)	C3 (inches)	C4 (inches)	C5 (inches)	C6 (inches)
Base Offset of 12 inches	0	0.0	15.6	15.7	15.7	12.3	5.9
Lifted 6 in.	-6	1.8	16.1	16.1	16.0	12.8	0.0
Offset 15 in.	0	0.0	14.8	15.6	15.6	12.5	6.9
Offset 18 in.	0	0.0	15.9	15.5	16.3	10.8	2.4

Table 2 - Summary of HVE crush profiles from SIMON simulation runs.

Critical among the different HVE runs that Grimes performed is the run he ran to account for a 6-inch lift (4.5-inch lift kit, as installed on the F-250 in the Accident). When Grimes used this variable, but he kept all other variables the same as Buchner's amended HVE simulations, such a collision would only cause "crush" of 16.1 inches, or 1.34 feet. In contrast, according to Buchner, the Actual Crush was 3.35 feet. **Buchner's HVE simulation would have miscalculated the Actual Crush by 2.01 feet**. This is proof that HVE, as used by Buchner, is not capable of simulating the actual crush in this case. Likewise, HVE is not capable of simulating the hypothetical crash that Buchner relies upon to opine about the predicted crush had the F-250 not been lifted.

F. RC's Crash Test

RC performed an actual crash test between an unlifted 2016 F-250 and a 2008 Escape. The test crash showed that an unlifted 2016 F-250 crashing into the rear of a 2008 Escape at 49.9 miles per hour would have the same destructive force as

Plaintiffs' Escape incurred when Mr. Elliott's F-250 crashed into its rear. [*See, e.g.*, Doc. 123 (video of test crash).]

In his Rebuttal Report, Buchner presents certain opinions about the test crash. The crux of Buchner's rebuttal opinions focused on whether the test crash's offset was different from the actual crash's offset. [Doc. 119-6 (Rebuttal Depo.), at 104:3-5 ("primary difference between" test crash and HVE simulations "is the [allegedly] excessive offset of the crash test").] Buchner performed analysis of photographs and videos to determine that the "test F250 struck the test Escape 4 to 6 inches further towards the Escape driver's side than in the accident." [Ex. 3 (Rebuttal Report), at 3.] (RC disputes this contention. *See, e.g.*, Doc. 127.)

Despite his criticisms of the crash test's other variables, Buchner repeatedly admitted that he used the same variables as RC's experts in his HVE simulations. [*See, e.g.*, Doc. 119-6 (Rebuttal Depo.), at 99-100 (test and HVE had same height for the F-250, neither had cargo placed in the rear of the Escape, neither included a sunroof on the Escape, neither involved a child seat, both were done at approximately the same speed at impact).]

II.   ARGUMENT AND CITATIONS OF LEGAL AUTHORITY

The standards applicable to *Daubert* motions are well-established. "District courts are charged with this gatekeeping function 'to ensure that speculative, unreliable expert testimony does not reach the jury' under the mantle of reliability

that accompanies the appellation 'expert testimony.'" *Rink v. Cheminova, Inc.*, 400

F.3d 1286, 1291 (11th Cir. 2005). Ultimately, the Court must determine if expert

testimony is admissible, and a three-part inquiry is conducted to determine whether:

> [t]he expert is qualified to testify competently regarding the matters he intends to address; (2) the methodology by which the expert reaches his conclusions is sufficiently reliable as determined by the sort of inquiry mandated in *Daubert;* and (3) the testimony assists the trier of fact, through the application of scientific, technical, or specialized expertise, to understand the evidence or to determine a fact in issue.

Quiet Tech. DC-8, Inc. v. Hurel-Dubois UK Ltd., 326 F.3d 1333, 1340–41 (11th Cir.

2003).

As the party proffering Buchner's testimony and the HVE simulations,

Plaintiffs have "the burden of satisfying each of these three elements by a

preponderance of the evidence." *Rink v. Cheminova, Inc.*, 400 F.3d 1286, 1292 (11th

Cir. 2005).[7] Plaintiffs cannot do this because Buchner's opinions fail the second

prong of reliability.

To determine if a particular opinion is reliable, the Court should consider:

> (1) whether the expert's theory can be and has been tested; (2) whether the theory has been subjected to peer review and publication; (3) the known or potential rate of error of the particular scientific technique; and (4) whether

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[7] Even if the Court finds that Buchner is qualified to testify as an expert, that does not mean that his opinions are reliable. *See, e.g., Quiet Tech. DC-8, Inc.*, 326 F.3d at 1341 ("while an expert's overwhelming qualifications may bear on the reliability of his proffered testimony, they are by no means a guarantor of reliability").

the technique is generally accepted in the scientific community. *Quiet Tech. DC-8, Inc.*, 326 F.3d at 1341. The first and third factors can be considered at together because there is a simple way to test whether a methodology is accurate: by comparing the simulation's outcome to a known and real occurrence. "Proposed testimony must be supported by appropriate validation - *i.e.,* 'good grounds,' based on what is known." *Daubert*, 509 U.S. at 590. Here, what is known is the actual crush incurred by Plaintiffs' Escape. Thus, Buchner's methodologies for reaching his opinions can be validated by changing the variables to mimic the actual crash and then comparing the two. This should be a relatively simple process. But Buchner never did this.

A. Buchner's Mathematical Crush Analysis is Not Reliable

A motor vehicle crash is a complicated event that is more than the sum of its parts. Complex components – like crush – cannot be distilled simply by looking at objective values, such as speed, delta-V, or weight. In this regard, it is like a painting. A painting can be made up of different types of paint; it can be painted with different types or widths of brushes; different techniques can be used; and it can be placed on a canvas or wood surface. When one looks at a finished painting, an expert eye can reverse the process and those objective variables can be discerned.

But the reverse is not true: an expert eye cannot look at the objective variables alone and determine what the painting will be. This is what Buchner is attempting to

do through his mathematical "crush analysis" in this case. While it may be common

for an accident reconstructionist to use mathematical formulas to determine less

complex variables, such as speed or delta-V, it is inappropriate and unreliable to

calculate a complex issue, such as the hypothetical "crush" that a 2008 Escape would

incur when hit by a 2016 F-250.

Buchner attempts to use "crush analysis" to determine the amount of

deformation, or crush, that a 2008 Escape would incur from a rear-impact by a

stock/unlifted 2016 F-250. This is not a proper usage of "crush analysis" because it

requires that the actual, known crush/deformation as a required component. As the

Fourth Circuit recognized in *Silvestri v. Gen. Motors Corp.,*

> [a] crush analysis is performed by *actually measuring the amount of crush* at
> numerous points on the vehicle. These crush measurements are used to create
> a crush profile of the vehicle, which, in turn, is used to determine the change
> in velocity, or "delta V" of the vehicle in the accident. Such information is
> important to a detailed reconstruction of the accident.

271 F.3d 583, 588 (4th Cir. 2001) (italics added). Similarly,

> An energy crush analysis uses *the measured deformation* to a vehicle to
> calculate the total energy in a vehicle collision, the force applied to each
> vehicle, and ultimately the change in speed of each vehicle, Delta-V, due to
> the collision.

Dragos v. Cornea, No. C19-1338 JCC-TLF, 2021 WL 3540601, at *4 (W.D. Wash.

July 14, 2021), *objections overruled,* No. C19-1338-JCC, 2021 WL 9122243 (W.D.

Wash. Aug. 26, 2021) (discussing its usage to "determine the speed of vehicles in a

-13-

collision") (italics added). "In a crush analysis, . . . the known stiffness of the portions

of the vehicles that collided and *the measurements of the damage from the crash* [are

used] to calculate the energy of the crash. The delta-v can be derived from this

calculation." *Lanzetta v. Hyundai Motor Am., Inc.*, No. 16CV03390, 2020 WL

13660569, at *1 (D.S.C. June 29, 2020) (italics added). As further explained in

Lanzetta, "a crush analysis depends primarily on two variables -- (1) the stiffness of

the crashing vehicles and (2) *the measurements of the amount the vehicles were*

crushed." 2020 WL at *1. All of these cases recognize the same thing: that a proper

"crush analysis" requires the actual "measured deformation" to determine the energy

of the crash. Thus, while "crush analysis" may be used to determine simple variables,

such as energy or speed, it was not intended to reverse calculate the amount of crush.

B. Buchner's HVE Simulations Should be Excluded Because They are Unreliable to Determine Crush[8]

The simple fact is that Buchner used the HVE/Simon software for an improper

purpose. HVE was not designed to calculate crush. As Grimes explained,[9] "[t]he

problem . . . with what Buchner did is he's using a model that was derived for use of

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[8] RC agrees HVE can be a reliable tool for purposes *other than calculating crush*.

[9] While Buchner is self-taught on HVE and hasn't attended HVE-related training in 20+ years, Grimes "teaches about . . . computer simulation models, specifically the Human Vehicle Environment (HVE) computer simulation software." [Grimes's Curriculum Vitae, attached hereto as Exhibit 6), at 2 and 3-5 (listing numerous times he was an "Instructor" on HVE).]

looking at an end condition, if you will, that is the crush on a real vehicle and modeling different aspects of that to figure out speed." [Doc. 102-3 (Grimes Depo.), at 158:15-19.]

It has to do with how the HVE/SIMON/DyMesh model is designed to work. "The way the DyMesh model works is each vehicle has these little tennis balls" and "they are connected by lines that can neither push nor pull." (*Id.*, at 159:25-160:3.) During the simulation, the software then moves the "tennis balls" according to its programming. (*Id.*, at 159:17-160:24.) But for what Buchner does,

> *. . . The mathematical formulas are just not there. That's not what it's made for.* The effect of that is that whenever you – whenever the vehicles interact, it cannot push down and pull surrounding the material with it, so *you can't get distortion and induced damage*.
>
> It's okay to look at a crashed vehicle where you have crush and say I'm going to try and model that crush with appropriate stiffness coefficients, vehicle motion and things like that. That's what SIMON is made for and it does a great job for that, but it is not appropriate to blindly say, I'm going to crush one vehicle into another and accurately predict the crush profile *because there's no mechanism inside the model – there's no mathematical formulas to handle the one vehicle overriding the other*. It just – there's no math there to do it. So it can't be done. And *there's so many little permutations that take place. It's just inappropriate to do*.

[Doc. 102-3 (Grimes Depo.), at 161:4-165:2 (italics added).]

The district court in *Dragos* was faced with a similar situation. There, the expert attempted to "use[] EDCRASH to 'reverse calculate' vehicle deformation

from a selected Delta-V."[10] 2021 WL at *5. But, as here, he "us[ed] EDCRASH in a way that is not validated, . . . [and] in a way that is not consistent with the EDCRASH program design." *Id.*, at *6. Thus, the court found that

> EDCRASH does not appear to be designed to perform the analysis done by Mr. Probst, specifically the software is not designed to calculate vehicle damage based on an input of Delta-V and the EDCRASH user manual does not direct the use of the program in this fashion.

Id. As a result, the court excluded any expert testimony based on the EDCRASH calculations. *Id.*, at *7 (*inter alia*, "the EDCRASH program is weakly validated and used by Mr. Probst in a way inconsistent with the validation and user manual").

1. Buchner's Usage of HVE to Calculate Crush Has Not Been Tested and The Known Rate of Error is Significant

Ultimately, it is crucial that a computer model accurately simulate what it is intended to recreate, and this determines its reliability. This can be demonstrated by looking at testing of the simulations and whether the simulations have an ascertainable rate of error.

In this case, the Actual Crush incurred by the Escape as a result of the Accident is known. Hence, the way to validate Buchner's usage of HVE to predict crush is to run an HVE simulation that mirrors the Accident, *i.e.*, with the F-250 raised six

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[10] EDCRASH is a computer simulation like HVE. It is used to "calculate Delta-V in one or two vehicle collisions if measured vehicle deformation data is input to determine the severity of a collision." *Dragos*, 2021 WL at *5. Both EDCRASH and HVE are products of Engineering Dynamics Company, LLC.

inches, and then compare its simulated outcome to the actual crush. "What Buchner is doing is using the SIMON model to predict an outcome when he doesn't have a basis to compare it to."[11] [Doc. 102-3 (Grimes Depo.), at 158:20-22.] This is improper, as Grimes explained:

> Whenever you're running a simulation, you put in initial conditions and you predict a final condition. *And the way you know you're reasonably close is that you match the final condition.*
>
> But Buchner doesn't have a final condition to compare it to. So its an improper use of the software.

[Doc. 102-3 (Grimes Depo.), at 158:23-159:4; *see id.*, at 162:23-164:1 ("That's – that's really a requirement for running a simulation in a case like this of you need something to match to at the end and that doesn't exist here.").] There is no validation of Buchner's use of HVE to simulate crush.

Buchner intentionally chose not to validate his HVE simulation. [Doc. 119-4 (First Depo.), at 6 (18:4-6 ("Did you use HVE to try to simulate the accident that happened in this case? No.").] Buchner has never tested or validated the outcome of his use of HVE software to predict an Escape's crush by comparing the simulated

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[11] According to the DyMESH website, "Researchers can *compare simulated damage against actual damage* from staged collisions or real world crashes as a means to validate their simulation results." (see https://edccorp.com/index.php/hve-software/simon/dymesh, last visited February 27, 2025) (italics added).

crush for a lifted F-250 in his HVE simulations against the actual crush incurred by Plaintiffs' Escape. This is a fundamental flaw in his analysis and use of the HVE/SIMON software

But Grimes, RC's expert, did it. To determine whether Buchner's use of HVE to predict crush was reliable, Grimes did exactly what Buchner should have done: he ran an HVE simulation against a known outcome to determine whether the methodology and approach was accurate. He also ran HVE simulations at different offsets. [Doc. 116-4 (Grimes Nov. Report), at 3-8.] The results unequivocally show that HVE simulations do not accurately predict crush and they are therefore not reliable. *See, e.g., Dragos*, 2021 WL at *7 ("[t]he program also does not have a known error rate when used to 'reverse calculate' Delta-V from the observed vehicle damage").

Grimes took Buchner's HVE simulations and ran multiple configurations, including one with a simulated F-250 that was lifted 6 inches (like Mr. Elliott's F-250 in the actual Accident). Simply stated, if the HVE simulation resulted in a predicted crush that was substantially similar to the actual crush suffered by the Escape in the Accident, then Buchner's use of the HVE simulation could be argued to be reliable. Ultimately, the proof is in the pudding, and Buchner's methodology failed.

The HVE simulation for a lifted F-250 yielded far less "crush" than the actual Accident. According to Buchner's measurements, the Accident between Mr. Elliott's 6-inch lifted F-250 and Plaintiffs' Escape caused Actual Crush of 3.66 feet (or 43.9 inches). [Ex. 1 (Initial Report), at 4.] But when an HVE simulation of a 6-inch lifted F-250 was run consistent with Buchner's approach, the maximum crush was only 16.1 inches. [Ex. 5 (Grimes Nov. Report), at 10.] *The 27.8 inch difference in crush between Plaintiffs' actual Escape and the HVE simulation's digital Escape is a massive error, and it shows that Buchner's use of HVE simulations to predict crush is unreliable.*

The unreliability of Buchner's use of HVE simulations to predict crush is further demonstrated by the fact that different simulation configurations yielded similar outcomes. [*See, e.g.*, Ex. 5 (Grimes Nov. Report), at 10.]

> . . . [T]he crush depths vary a little between the different impact configurations, but overall are very consistent, even though the impact configurations were significantly different. These results show that the SIMON tool is not accurately modeling the crush on the Ford Escape in this case, at these speeds and impact configurations. . . . *In summary, Buchner's usage of HVE to predict crush on the Ford Escape is not reliable.*

[*Id.* (italics added).] Buchner's usage of HVE simulations to predict crush was tested, and it resulted in a significant error. Buchner's HVE simulations, and his opinions based on them, are unreliable and should be excluded.

2. <u>Buchner's Use of HVE in this Case Has Not Been Peer
Reviewed, Otherwise Validated, or used Similarly by Others</u>

Buchner's use of HVE simulations for predictive purposes has not been validated or subject to any peer review or other critical analysis. *See, e.g., Cosper v. Ford Motor Co.*, No. 2:18-CV-189-RWS, 2022 WL 17908815, at *5 (N.D. Ga. Oct. 17, 2022) (expert's "testimony is reliable because his theory has been tested and subjected to peer review").

Moreover, Buchner admits that he has not done anything to validate the use of HVE to simulate crush in a hypothetical case.

Counsel: And what I'm getting at is, if you faced a challenge like that before, you may have collected articles, peer-reviewed studies, or other material that would support your argument that using HVE to study crush is a reliable, scientific method for simulating, you know, crush in a hypothetical case.

                    It sounds like you haven't done that; is that correct?

Buchner: I really haven't done that because I've been using it for so long and I try to stay up – up-to-date on what's going on.

                    So, I mean, I – I feel like – I haven't and I – I don't remember having an issue with it.

[Doc. 119-4 (First Buchner Depo.), at 42-43 (165:25-166:14).]

Buchner's premise is that his use of HVE simulations in this case was reliable and appropriate because he, himself, says so. This does not make it reliable or admissible. "If admissibility could be established merely by the *ipse dixit* of an

admittedly qualified expert, the reliability prong would be, for all practical purposes, subsumed by the qualification prong." *United States v. Frazier*, 387 F.3d 1244, 1261 (11th Cir. 2004); *see also Giusto v. Int'l Paper Co.*, 571 F. Supp. 3d 1346, 1357 (N.D. Ga. 2021) ("What a proponent cannot do is establish admissibility 'merely by the *ipse dixit* of an admittedly qualified expert.'").

There must be something more than the expert's say-so. Otherwise, that would be akin to having the inmates run the asylum: they can do what they want because they say they want to do it. But "nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert." *Strozier v. Herc Rentals, Inc.*, No. 1:19-CV-01083-JPB, 2023 WL 5487353, at *5 (N.D. Ga. Aug. 24, 2023) (quoting *Cook ex rel. Est. of Tessier v. Sheriff of Monroe Cnty.*, 402 F.3d 1092, 1111 (11th Cir. 2005). The lack of any third party review or validation of Buchner's usage of HVE simulations renders it unreliable, and they should be excluded. *Riley v. Tesla, Inc.*, 603 F. Supp. 3d 1259, 1282 (S.D. Fla. 2022), *on reconsideration*, No. 20-CV-60517, 2022 WL 2341165 (S.D. Fla. June 29, 2022) (excluding expert's opinion where "he does not identify any scientific evidence or testing to support" it). The lack of any peer review or other validation for Buchner's use of HVE simulations to predict crush further demonstrates that they are not reliable and should be excluded. *See, e.g.*, *Bacho v. Rough Country, LLC*, No. 3:14-CV-40-TCB, 2016 WL 4607880, at *3

(N.D. Ga. Mar. 17, 2016) (excluding expert opinion "on the *amount* of crush that may have been avoided by an un-lifted bumper" where expert "performed no independent crash tests, nor does he have data from any tests conducted on the particular make and model of vehicles involved in the [actual] crash," and that was "not enough to be able to reliably quantify how the amount of crush would have changed if the truck's bumper was not lifted") (italics in original).

C. Buchner's HVE Simulations Should be Excluded Because They Are Not Substantially Similar to the Accident.

Plaintiffs previously moved to strike RC's crash test of a real unlifted 2016 F-250 into a real 2008 Escape based on their belief that the Crash Test was not substantially similar to the Accident pursuant to *Burchfield v. CSX Transp., Inc.*, 636 F.3d 1330 (11th Cir. 2011). (*See* Doc. 115.) RC opposed this motion because, in part, Buchner's HVE simulations used the same characteristics as the test crash, as discussed *supra*. (*See* Doc. 127.) Thus, if the Court finds that RC's test crash was not substantially similar to the Accident and excludes it, then Buchner's HVE simulations should similarly be excluded because they suffer from the same alleged deficiencies.

D. Rebuttal Opinion

Buchner's rebuttal opinions should be excluded because, like his prior opinions, they are unreliable and unvalidated. First, one of Buchner's primary

complaints with the test crash is that the offset was too great. Despite this, however, Buchner did no testing to determine what effect the alleged increased offset would have on the crush incurred by the test Escape. [Doc. 119-6 (Rebuttal Depo.), at 275:19-23.] As a result, Buchner is "not able to quantify the difference in crush that would be caused by the alleged five plus or minus one inch additional offset that occurred in the crash test," (*id.,* at 276:1-6). Rather, his conclusion of increased crush is based on "intuition," (*id.*, at 277:1-2.)

Second, Buchner could have personally inspected the test vehicles, but did not do so. Instead, he relied on photographs or other imagery. (Rebuttal Depo., at 97:7-12).

<div align="center">E. <u>It Would Be Prejudicial to Allow Buchner's Opinions</u></div>

An expert's opinion can be excluded under Rule 403 if the alleged probative value is outweighed by the risk of unfair prejudice or the likelihood of misleading the jury. Here, it is possible that the jury may attached an exaggerated significance to Buchner's testimony because he is an "expert." *Skelton v. Action Traders, Ltd.*, 662 F. Supp. 3d 1259, 1264 (N.D. Ga. 2023). It would be unduly prejudicial to allow Buchner to testify to the jury about a complex event such as the Accident using means that oversimplify it or because of Buchner's "intuition."

F. If Buchner's Opinions Are Excluded, Then Any Expert Opinion Based on Them Should Also Be Excluded

Plaintiffs also retained Paul Lewis, Jr. and Christopher Roche as expert witnesses. A significant portion of their opinions are based on Buchner's work.[12] (*See* Doc. 104-2, at 10-12.) In Lewis's report's "Analysis, Opinions, and Support" section, Lewis expressly relies on portions of Buchner's efforts. [*See id.*, at 20, ¶¶ 1.20, 1.21, 1.22, and 1.23 (expressly referring to Buchner's "reconstruction").] Lewis then opines that

> [h]ad [C.Z.B.'s] occupant survival space been preserved, this would have eliminated the impact of his body with the front seat structures thereby preventing his fatal injuries. *Had [C.Z.B.]'s survival space been preserved via the Ford truck being a stock height and not one above factory recommendation, he would have been expected to survive this incident with non-life threatening and non-permanently disabling injuries.*

[*Id.*, at ¶ 1.24 (italics added).] Lewis himself confirmed that he was "relying upon the accuracy and reliability of [Buchner's] reconstruction both of the actual accident and of his simulation of the hypothetical accident that would be where – the F-250 was not lifted," [Doc. 102-2 (Lewis Depo.), at 35:8-13; *see also id.*, at 35:2-3 ("that's why I have Buchner's report and utilize his findings").]

Roche similarly relied on Buchner's reconstruction efforts.

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[12] Lewis's initial report, dated October 16, 2023 (the "Lewis Report"), was previously filed under seal as Doc. 104-2.

Because Lewis and Roche's opinions are specifically based on Buchner's opinion that a stock F-250 would have caused less crush of the Escape, then the absence of Buchner's opinion as a foundation would render Mr. Lewis's opinion inadmissible. *See Cosper*, 2022 WL at *6 ("experts may rely on the opinion of another expert so long as there is a reasonable belief that the other expert's opinion is reliable").

III.   CONCLUSION

As explained above, Buchner's testimony and opinions should be excluded for a host of reasons. *First*, Buchner's mathematical "crush analysis," and his resulting Crush Calculation, is unreliable. *Second*, Buchner's use of HVE software to calculate crush is unreliable. *Third*, Buchner's HVE simulations are not substantially similar to the Accident. *Fourth*, it would be prejudicial to allow Buchner to proffer his opinions at trial. As such, Buchner's testimony and opinions, as well as any other expert's reliance on Buchner's opinions or accident reconstruction efforts, should be excluded, and this motion should be GRANTED.

This 10th day of March, 2025.

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RULE 7.1D CERTIFICATE OF TYPE, FORMAT AND FONT SIZE

Pursuant to Local Rule 7.1D of the United States District Court of the

Northern District of Georgia, the undersigned certifies that the foregoing submission

to the Court complies with Local Rule 5.1 in that it was computer-processed, double-

spaced between lines, and used Times New Roman font of 14 point size.

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CERTIFICATE OF SERVICE

This is to certify that I have electronically served the foregoing filing with the

Clerk of Court via CM/ECF, which will send a copy to the following attorneys of

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